

NiceZyme View of ENZYME: EC 2.4.1.155

Official Name

Alpha-1,6-mannosyl-glycoprotein 6-beta-N- acetylglucosaminyltransferase.

Alternative Name(s)

Alpha-1,3(6)-mannosylglycoprotein beta-1,6-N- acetylglucosaminyltransferase.

Alpha-mannoside beta-1,6-N-acetylglucosaminyltransferase.

N-acetylglucosaminyltransferase V.

UDP-N-acetylglucosamine:alpha-mannoside-beta-1,6 N- acetylglucosaminyltransferase.

Uridine diphosphoacetylglucosamine-alpha-mannoside beta-1->6-acetylglucosaminyltransferase.

Reaction catalysed

UDP-N-acetyl-D-glucosamine + 6-(2-(N-acetyl-beta-D-glucosaminyl)-alpha-D-mannosyl)-beta-D-mannosyl-R <=> UDP + 6-(2,6-bis(N-acetyl-beta-D-glucosaminyl)-alpha-D-mannosyl)-beta-D-mannosyl-R

Comment(s)

R represents the remainder of the N-linked oligosaccharide in the glycoprotein acceptor.

Cross-references

BRENDA	2.4.1.155
PUMA2	2.4.1.155
PRIAM enzyme-specific profiles	2.4.1.155
Kyoto University LIGAND chemical database	2.4.1.155
IUBMB Enzyme Nomenclature	2.4.1.155
IntEnz	2.4.1.155
MEDLINE	Find literature relating to 2.4.1.155
MetaCyc	2.4.1.155
UniProtKB/Swiss-Prot	P97259, MGAT5_CRIGR; Q09328, MGAT5_HUMAN; Q8R4G6, MGAT5_MOUSE; Q08834, MGAT5_RAT;

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All UniProtKB/Swiss-Prot entries referenced in this entry, with possibility to download in different .



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Entry EC 2.4.1.155 Enzyme

Name alpha-1,6-mannosyl-glycoprotein
6-beta-N-acetylglucosaminyltransferase;
N-acetylglucosaminyltransferase V;
alpha-mannoside beta-1,6-N-acetylglucosaminyltransferase;
uridine diphosphoacetylglucosamine-alpha-mannoside
beta1->6-acetylglucosaminyltransferase;
UDP-N-acetylglucosamine:alpha-mannoside-beta1,6
N-acetylglucosaminyltransferase;
alpha-1,3(6)-mannosylglycoprotein
beta-1,6-N-acetylglucosaminyltransferase

Class Transferases
Glycosyltransferases
Hexosyltransferases

Sysname UDP-N-acetyl-D-glucosamine:6-[2-(N-acetyl-beta-D-glucosaminyl)-alpha-D-mannosyl]-glycoprotein 6-beta-N-acetyl-D-glucosaminyltransferase

Reaction UDP-N-acetyl-D-glucosamine +
6-(2-[N-acetyl-beta-D-glucosaminyl]-alpha-D-mannosyl)-beta-D-mannosyl-R = UDP +
6-(2,6-bis[N-acetyl-beta-D-glucosaminyl]-alpha-D-mannosyl)-beta-D-mannosyl-R
[RN:R04665 R05991]

Substrate UDP-N-acetyl-D-glucosamine [CPD:C00043];
6-(2-[N-Acetyl-beta-D-glucosaminyl]-alpha-D-mannosyl)-beta-D-mannosyl-R [CPD:C04944]

Product UDP [CPD:C00015];
6-(2,6-Bis[N-acetyl-beta-D-glucosaminyl]-alpha-D-mannosyl)-beta-D-mannosyl-R [CPD:C05159]

Pathway PATH: map00510 N-Glycan biosynthesis
PATH: map01030 Glycan structures - biosynthesis 1

Ortholog KO: K00744 alpha-1,3(6)-mannosylglycoprotein
beta-1,6-N-acetyl-glucosaminyltransferase

Genes HSA: 4249 (MGAT5)
MMU: 107895 (Mgat5)
RNO: 65271 (Mgat5)
CEL: C55B7.2 (gly-2)

Disease MIM: 601774 Mannosyl (alpha-1,6-)-glycoprotein beta-1,6-N-acetyl-

Reference 1 [PMID:6216250]
Cummings RD, Trowbridge IS, Kornfeld S.
A mouse lymphoma cell line resistant to the leucoagglutinating lectin from Phaseolus vulgaris is deficient in UDP-GlcNAc:alpha-D-mannoside beta 1,6 N-acetylglucosaminyltransferase.
J. Biol. Chem. 257 (1982) 13421-7.
2 [PMID:2834054]
Hindsgaul O, Tahir SH, Srivastava OP, Pierce M.
The trisaccharide
beta-D-GlcpNAc-(1----2)-alpha-D-Manp-(1----6)-beta-D-Manp, as its
8-methoxycarbonyloctyl glycoside, is an acceptor selective for
N-acetylglucosaminyltransferase V.